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ABSTRACT

Changes already well underway in the world of work will affect the opportunities for full employment, and these changes will have an impact upon all working persons, including the hearing impaired. In the year 2000, many more women, more older persons, and more individuals with different language backgrounds and cultures will be in the work force. Modern medicine and creative technology will enable more disabled workers to be employed. Business and industry are challenging schools and rehabilitation centers to produce qualified candidates for the jobs that await them. Many current jobs will disappear; 86 percent of the work force will be in the service sector. Half of the service sector jobs will be related to information collection, management, and dissemination. To prepare for the future, hearing impaired persons must have basic skills, be able to communicate, and possess career-related interpersonal skills. Other necessary skills and background will be expected, including a familiarity and proficiency in computer operation. Teachers and parents must overcome fears and suspicions of new computer technology and encourage hearing impaired children to use a keyboard to access the possibilities of the computer. (YLB)

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NEW OPPORTUNITIES FOR EMPLOYMENT IN THE 1990'S

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WILL HEARING IMPAIRED CHILDREN AND YOUTH HAVE ANY BETTER EMPLOYMENT FUTURE TO LOOK FORWARD TO IN THE 1990'S THAN THEY DO TODAY?

THIS IS A QUESTION THAT EDUCATORS AND PARENTS, AS WELL AS THE YOUTH THEMSELVES, SHOULD BE DISCUSSING. IN THE MID 1980'S THERE ARE THINGS WE SHOULD BE DOING TODAY TO HELP ANSWER THE ABOVE QUESTION WITH A LOUD AND CLEAR, "YES".

AN AFFIRMATIVE ANSWER, HOWEVER, WILL DEPEND ON MORE THAN THE THE COMMITMENT OF THE DEAF STUDENT, HIS PARENTS AND HIS TEACHER. THERE ARE CHANGES ALREADY WELL UNDERWAY IN THE WORLD OF WORK WHICH WILL AFFECT THE OPPORTUNITIES FOR FULL EMPLOYMENT, REGARDLESS OF HOW WELL ARE YOUNG PEOPLE ARE TRAINED. IT IS IMPORTANT THAT WE UNDERSTAND THESE RADICAL CHANGES IN BUSINESS, INDUSTRY AND EDUCATION WHICH WILL IMPACT UPON ALL WORKING PERSONS, INCLUDING THOSE WHO HAVE A HEARING, SPEECH AND LANGUAGE DEFICIT.

MANY OF THE FOLLOWING COMMENTS WILL APPLY TO OTHER COUNTRIES AS WELL AS THE UNITED STATES. THIS PAPER, HOWEVER, IS BASED ON WHAT WE KNOW AND WHAT WE PROJECT FOR THE FUTURE ON THE NORTH ATLANTIC SIDE OF THE ATLANTIC OCEAN.

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THE CHANGING WORK ENVIRONMENT

THE NUMBERS, SEX, AND CULTURAL BACKGROUNDS OF THE WORK FORCE IN THE YEAR 2000 ARE NO LONGER GUESSWORK. THE BABY WHO WAS BORN IN 1980 WILL BE THE YOUTH ENTERING THE WORK FORCE AT AGE 20 IN THE YEAR 2000. WE KNOW THE NUMBERS AND SEX OF THE POPULATION BORN IN 1980, SO WE ALREADY KNOW A GREAT DEAL ABOUT THE INCOMING WORK FORCE IN THE YEAR 2000. RESEARCHERS TELL US THAT WE CAN EXPECT MANY MORE WOMEN IN THE WORKFORCE THAN WE HAVE TODAY AND MORE OLDER PERSONS.

MORE AMERICANS ARE LIVING LONGER AND ARE IN BETTER HEALTH IN THEIR OLDER AGE. MANY ARE CAPABLE OF CONTINUING TO WORK BEYOND AGE 65 AND MANY WILL WANT TO CONTINUE SOME KIND OF GAINFUL EMPLOYMENT BEYOND THE HISTORICAL RETIREMENT AGE OF 65. IT MAY NOT ALWAYS BE FULL TIME EMPLOYMENT, BUT THEY WILL BE MAKING SOME KIND OF CONTRIBUTION TO THE GROSS NATIONAL PRODUCT AS WORKERS OR AS PART OF THE GROWING VOLUNTEER MOVEMENT IN THE UNITED STATES.

ALSO WE HAVE A PRETTY GOOD IDEA OF THE CULTURAL BACKGROUNDS OF THOSE IN THE WORK FORCE IN THE FUTURE. WE EXPECT CONTINUED IMMIGRATION WITH EMPHASIS ON THOSE FOR WHOM ENGLISH IS NOT THE MOTHER TONGUE. NOT ONLY WILL THE LANGUAGE HISTORY BE DIFFERENT, BUT THE CULTURAL BACKGROUND WILL BE DIFFERENT FROM THAT FROM WHICH MANY PRESENT AMERICAN FAMILIES HAVE EXPERIENCED. NO ONE CAN SAY THAT THIS IS BETTER OR WORSE, BUT ONLY THAT IT WILL BE DIFFERENT.

ONE SHOULD ADD TO THE ABOVE LIST OF CHANGES, THE EXISTENCE OF THE DISABLED WORKER. MODERN MEDICINE HAS ENABLED MANY MORE CHILDREN TO SURVIVE EARLY CHILDHOOD ILLNESSES AND CONGENITAL DEFECTS. ALSO THE CREATIVE TECHNOLOGY OF AMERICA HAS COME UP WITH MANY NEW PRODUCTS AND HAS ADAPTED SPACE AND MILITARY TECHNOLOGY TO MEET MANY OF THE EVERYDAY NEEDS OF DISABLED PERSONS IN A WAY THAT COULD ONLY BE DREAMED OF 20 YEARS AGO.

THE SENSITIVITY OF AN ENTIRE NATION HAS BEEN HEIGHTENED TO THE POTENTIAL OF DISABLED PERSONS. IN THE UNITED STATES MAINSTREAMING OF HANDICAPPED CHILDREN INTO THE REGULAR PUBLIC SCHOOLS HAS BECOME A FACT OF LIFE, THOUGH IT IS NOT WITHOUT PROBLEMS SOME OF WHICH ARE STILL BEING RESOLVED. HEARING IMPAIRED YOUTH, AND THEIR PARENTS, HAVE COME TO THE POINT WHERE THEY LOOK FORWARD TO EMPLOYMENT IN BUSINESS, INDUSTRY OR EDUCATION WITH A DECENT SALARY, WORKING CONDITIONS AND POTENTIAL FOR GROWTH IN THE SAME MANNER AS THE NON-HEARING IMPAIRED YOUTH. BUSINESS AND INDUSTRY HAVE GROWN TO ACCEPT THE POTENTIAL OF HEARING IMPAIRED PERSONS FOR CERTAIN TYPES OF JOBS AND ARE NOW CHALLENGING SCHOOLS AND REHABILITATION CENTERS TO PRODUCE THE QUALIFIED CANDIDATES FOR THE JOBS WHICH AWAIT THEM.

NEW JOBS ARE EMERGING

NOT ONLY IS THE COMPOSITION OF THE WORK FORCE IN AMERICA CHANGING. THE JOBS ARE CHANGING AS WELL.

MANY OF THE OLD JOBS WILL DISAPPEAR - AND NOT JUST BECAUSE OF ROBOTS AND COMPUTERS. MANUFACTURING WILL PROVIDE ONLY 11% OF THE JOBS IN AMERICA IN THE YEAR 2000, DOWN FROM 28% IN 1980. JOBS RELATED TO AGRICULTURE WILL DROP FROM 4% TO 3%. THE TURN OF THE CENTURY WILL FIND THE REMAINING 86% OF THE WORK FORCE IN THE SERVICE SECTOR, UP FROM 68% IN 1980. OF THE SERVICE SECTOR JOBS, HALF WILL RELATED TO INFORMATION COLLECTION, MANAGEMENT AND DISSEMINATION (CETRON, 1983).

THE REASONS FOR THESE CHANGES ARE NOT MATERIAL TO THIS PRESENTATION. IT MAY BE SAID IN PASSING HOWEVER, THAT FOREIGN COMPETITION, COMPUTERIZATION AND ROBOTS, AND INCREASED PRODUCTIVITY OF THE AMERICAN WORKER AND A NATIONAL SHIFT TOWARD INFORMATION COLLECTION AND DISSEMINATION WILL ALL

CONTRIBUTE TO THE CHANGES MENTIONED ABOVE.

NEW OCCUPATIONS WILL EMERGE IN THE 1990'S, SOME OF WHICH ARE KNOWN TODAY; OTHERS CAN ONLY BE SURMISED FROM CURRENT TRENDS IN TECHNOLOGY, HUMAN NEEDS AND CHANGES IN LIFESTYLE:

HOUSING REHABILITATION TECHNICIANS (500,000 JOBS) WILL WORK ON PREFABRICATED MODULAR CONSTRUCTION TO MEET THE INTENSIFIED HOUSING DEMAND.

HAZARDOUS WASTE MANAGEMENT TECHNICIANS (300,000 JOBS) WILL BE NEEDED TO CLEAN UP THE AIR, LAND AND WATER.

GERIATRIC SOCIAL WORKERS (700,000 JOBS) WILL BE ESSENTIAL TO THE PROPER MENTAL AND SOCIAL CARE OF THE NATION'S AGING POPULATION.

INDUSTRIAL ROBOT PRODUCTION TECHNICIANS (800,000 JOBS) WILL BE NEEDED TO ASSURE FAIL-PROOF PERFORMANCE OF ROW AFTER ROW OF PRODUCTION ROBOTS IN AUTOMOBILE, APPLIANCE, MILITARY AND CONSUMER PRODUCT MANUFACTURING OPERATIONS.

IN ADDITION TO THE SPECIFIC EXAMPLES MENTIONED ABOVE BY A LEADING FUTURIST (CETRON, 1983), THERE WILL BE MANY NEW NON-TECHNICAL JOBS NECESSARY TO SERVICE THE GENERAL POPULATION. FOR EXAMPLE, THERE WILL BE AN ENORMOUS NEED FOR WAITERS AND WAITRESSES IN HOTELS, NURSING HOMES AND RESTAURANTS. JANITORS WILL BE NEEDED IN OFFICE BUILDINGS AND HOMES. GARDEN AND LAWN CARE PERSONNEL WILL BE IN DEMAND AS WELL AS CLERKS IN FAST FOOD SHOPS (LEVIN & RUMBERGER, 1983).

HOW DO HEARING IMPAIRED PERSONS PREPARE FOR THE FUTURE?

THE FIRST POINT TO BE MADE IS THAT HEARING IMPAIRED PERSONS MUST PREPARE FOR THE FUTURE JUST AS OTHERS PREPARE FOR IT. THEY MUST HAVE THE READING, WRITING AND MATHEMATICS SKILLS

THAT CONSTITUTE BASIC KNOWLEDGE FOR VIRTUALLY ANY EMPLOYMENT POSITION. EDUCATORS AND PARENTS CANNOT ASSUME THAT BECAUSE OF THE PRESSING DEMAND FOR NEW WORKERS TO MEET THE REQUIREMENTS OF BUSINESS AND INDUSTRY, A PERSON WILL BE HIRED WHO CANNOT READ THE QUESTIONS ON AN EMPLOYMENT APPLICATION AND MANAGE TO FILL IT OUT PROPERLY. EMPLOYERS HAVE A RIGHT TO EXPECT, AND DO EXPECT, THAT EMPLOYEES CAN MAKE CHANGE CORRECTLY, CAN PERFORM SIMILAR BASIC MATHEMATICAL FUNCTIONS THAT ARE REQUIRED FOR DAILY LIVING (TAYLOR, 1984).

IN ADDITION EMPLOYERS WILL EXPECT THAT THEIR EMPLOYEES HAVE THE CAPACITY TO COMMUNICATE COMFORTABLY WITH SUPERVISORS, FELLOW EMPLOYEES AND WITH PERSONNEL OFFICE STAFF. WHILE IT IS PREFERABLE AND DESIRABLE THAT SPOKEN COMMUNICATION BE POSSIBLE SINCE THIS WOULD FACILITATE COMMUNICATION WITH THE GREAT MAJORITY OF OTHER EMPLOYEES, IF NON-SPOKEN COMMUNICATION IS NECESSARY, THEN THE INDIVIDUAL SHOULD BE ABLE TO WRITE, READ AND/OR TAKE ADVANTAGE OF AN INTERPRETER.

A FURTHER ATTRIBUTE WHICH ANY WORKER MUST BE PREPARED TO DEMONSTRATE IS THE CAREER RELATED INTERPERSONAL SKILLS WHICH ENABLE THAT WORKER TO FUNCTION WITH PEERS IN THE WORKPLACE. HERE WE REFER TO SUCH THINGS AS LISTENING, NONVERBAL BEHAVIOR, GIVING AND RECEIVING INSTRUCTIONS, HANDLING QUESTIONS, PARTICIPATING IN GROUPS, RESOLVING CONFLICTS AND BEING ASSERTIVE (FLUGMAN, 1984). THE STUDENT WHO HAS NOT ACQUIRED THESE SKILLS EITHER AT SCHOOL OR THROUGH THE MODELING BEHAVIOR OF HIS PARENTS WILL HAVE A ROUGH TIME OBTAINING AND KEEPING EMPLOYMENT EVEN WHEN THERE IS A NEED FOR WORKERS.

MOST OF WHAT HAS BEEN MENTIONED ABOVE HAS EXISTED FOR YEARS IN THE PAST AND IS CERTAINLY NOT NEW TO EDUCATORS, PARENTS AND HEARING IMPAIRED STUDENTS THEMSELVES. WHETHER SCHOOLS AND PARENTS HAVE BEEN SUCCESSFUL IN THE PAST IS A QUESTION, BUT CERTAINLY THE LACK OF THESE BASIC AND INTERPERSONAL SKILLS HAVE BEEN AMONG THE PRIMARY REASONS WHY

MANY HEARING IMPAIRED PERSONS HAVE NOT MADE A SUCCESSFUL TRANSITION TO THE WORK PLACE FROM SCHOOL.

IN THE 1990'S OTHER SKILLS AND BACKGROUND WILL BE EXPECTED OF MANY IF NOT MOST WORKERS. MOST OF THOSE IN THE INFORMATION INDUSTRY, WHICH IT IS PREDICTED WITH DOMINATE THE BUSINESS AND INDUSTRY PICTURE IN THE UNITED STATES, WILL HAVE TO BE ABLE TO ACCESS A COMPUTER THROUGH A KEYBOARD OR THROUGH A VOICE OPERATED INPUT DEVICE. MANY JOBS WILL BE REDESIGNED TO ENABLE FASTER AND MORE VERSATILE PERFORMANCE THROUGH THE USE OF MICROS OR LARGER COMPUTERS. IT WILL BE IMPERATIVE, THEREFORE, THAT THE HEARING IMPAIRED STUDENT HAVE A FAMILIARITY AND HOPEFULLY A PROFICIENCY, IN COMPUTER OPERATION.

THE ABOVE PREDICTION OF THE NEED TO OPERATE A COMPUTER SHOULD NOT BE INTERPRETED TO MEAN THAT EACH HEARING IMPAIRED PERSON MUST BE ABLE TO PROGRAM A COMPUTER IN ORDER TO GAIN EMPLOYMENT. THIS WILL NO MORE BE NECESSARY THAN IT IS FOR A PERSON TODAY TO UNDERSTAND HOW TO BUILD AND MAINTAIN AN AUTOMOBILE IN ORDER TO DRIVE ONE.

WHAT WILL BE NECESSARY IS THE KNOWLEDGE OF HOW TO ASK A COMPUTER TO PERFORM CERTAIN TASKS, HOW TO ADJUST THE TASKS TO THE CAPABILITIES OF THE PARTICULAR COMPUTER HARDWARE AND SOFTWARE ONE IS USING AND HOW TO HANDLE THE RESULTS WHEN THE COMPUTER HAS FINISHED ITS TASK(S). INHERENT IN ACQUIRING THIS CAPABILITY ON THE PART OF THE HEARING IMPAIRED PERSON WILL BE A FAMILIARITY WITH THE DEVICE THAT INDICATES A LACK OF FEAR AND MYSTERY WHICH CURRENTLY KEEPS MANY PERSONS FROM USING COMPUTER TECHNOLOGY. THIS FAMILIARITY CAN BE ACQUIRED IN THE SCHOOL CLASSROOM AS WELL AS IN THE HOME. IT IS A KNOWLEDGE WHICH SHOULD BE HIGH ON THE LIST OF THINGS TO BE OFFERED TO HEARING IMPAIRED STUDENTS TODAY.

WHAT AN EXCITING OPPORTUNITY FOR EDUCATORS AND PARENTS OF HEARING IMPAIRED CHILDREN! IN THE CLASSROOM AND IN THE HOME,

THERE WILL BE GROWING NUMBERS OF COMPUTERS AND VIDEO DISK DEVICES WHICH WILL NOT ONLY ENHANCE LISTENING, LEARNING AND SPEECH, BUT WILL REPRESENT NEW SKILLS WHICH CAN BE TRANSPORTED INTO THE WORKPLACE AND BE BECOME A DISTINCT ASSET OVER OTHER CANDIDATES FOR THE SAME POSITION.

BUT WAIT! ARE COMPUTERS ANYTHING MORE THAN VIDEO GAMES WITH LIGHTS AND WHISTLES WHICH DRAW OUR YOUNGSTERS AWAY FROM THEIR STUDIES TO THE ARCADES? AND WHAT ABOUT THE REPORTS FROM THE UNITED KINGDOM THAT VIDEO-GAME ADDICTION AMONG YOUTH IS SO ACUTE THAT GAMBLERS ANONYMOUS (GA) IS PLANNING TO SET UP A NATIONAL NETWORK OF JUNIOR BRANCHES TO HELP THEM COPE? IT HAS ALSO BEEN REPORTED THAT VIDEO GAMES INDUCE ATTACKS OF EPILEPSY IN SUSCEPTIBLE PERSONS (LONG & LONG, 1984).

IT IS TRUE THAT IN AMERICA, MANY YOUNG PEOPLE HAD THEIR FIRST INTRODUCTION TO COMPUTERS VIA THE VIDEO GAMES ROUTE. VIDEO GAMES, HOWEVER, ARE FADING IN IMPORTANCE AND INTEREST AMONG AMERICAN CHILDREN. THE COMPANIES LIKE ATARI, WHICH EMPHASIZED VIDEO GAMES HARDWARE AND SOFTWARE, HAVE FALLEN ON HARD TIMES AND SOME HAVE ACTUALLY GONE OUT OF EXISTENCE. LET IT BE SAID, HOWEVER, THAT VIDEO GAMES DID INDEED CAPTURE THE ATTENTION OF CHILDREN AND YOUTH INITIALLY AND TO A LARGE EXTENT HAS LEAD THEM AND THEIR PARENTS TO AN APPRECIATION OF THE EXCITING GRAPHICS POSSIBLE WITH A MICROCOMPUTER.

GRAPHICS, THAT IS, CREATION OF IMAGES OF ANIMALS, HUMANS, AIRPLANES AND SPACE SHIPS IN MOTION ON A COMPUTER SCREEN REPRESENT A FANTASTIC NEW MEDIUM FOR EDUCATION. COMPUTERS TO LIVE UP TO THEIR POTENTIAL MUST BE MUCH MORE THAN AN ELECTRONIC TEXTBOOK. THE THINGS THAT MOTIVATE LEARNING - CHALLENGE, CURIOSITY AND FANTASY - ARE ALL POSSIBLE AND GO WAY BEYOND THE CAPABILITIES OF A PRINTED BOOK. AS USED IN VIDEO GAMES, THE FOLLOWING ARE AVAILABLE FOR LEARNING BY HEARING IMPAIRED CHILDREN WHO HISTORICALLY HAVE NEEDED SOMETHING IN ADDITION TO A PRINTED TEXT:

* ACTIVE INVOLVEMENT
* THE OPTION OF QUITTING WHEN IT GETS TOO HARD
* AUTOMATIC SELECTION OF APPROACHES THAT ARE WITHIN THE CHILD'S CAPABILITIES
* FLEXIBLE TIME SCHEDULES
* CONTROLLABLE ENVIRONMENT
* COMPETITION WITH HIMSELF RATHER THAN A HEARING PEER
* CONTINUOUS AUDITORY AND VISUAL FEEDBACK TO REWARD AND TO CHALLENGE
* CHANCE TO TEST HYPOTHESES

TO PREPARE FOR BOTH THE EDUCATIONAL AS WELL AS THE VOCATIONAL POSSIBILITIES OF COMPUTERS, TEACHERS AND PARENTS MUST FIRST OVERCOME THEIR OWN FEARS AND SUSPICIONS OF THE NEW TECHNOLOGY. THEN THEY MUST ENCOURAGE THEIR HEARING IMPAIRED CHILDREN TO LEARN TO USE A KEYBOARD SO THEY CAN GAIN ACCESS TO THE EXCITING POSSIBILITIES OF THE COMPUTER.

TOGETHER, PARENTS, TEACHERS AND THE PUPILS CAN GROW IN THEIR UNDERSTANDING AND USE OF THIS NEW TECHNOLOGY. ADULTS MUST BE PREPARED TO BE OUTRUN BY THEIR STUDENTS IN THEIR FASCINATION AND USE OF THE COMPUTER TECHNOLOGY. FOR ONCE, THE HEARING IMPAIRED CHILD HAS AN OPPORTUNITY TO MOVE AHEAD OF HIS PEERS AND EVEN HIS PARENTS AND TEACHERS IF HE APPLIES HIMSELF AND IS GIVEN THE OPPORTUNITY.

THE 1990'S AND BEYOND HOLD GREAT POTENTIAL FOR BOTH THE ABOVE AVERAGE AS WELL AS THE BELOW AVERAGE HEARING IMPAIRED CHILD. THE JOBS WILL BE THERE IF OUR YOUNGSTERS ARE PREPARED FOR THEM. WE HAVE THE TOOLS TO MEET THIS CHALLENGE AND WE MUST NOT PERMIT EDUCATIONAL INERTIA AND HISTORIC PREJUDICES ABOUT THE LIMITATIONS OF HEARING IMPAIRED PERSONS TO PREVENT US FROM MEETING THIS CHALLENGE.

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